National Institute of Environmental Health Sciences

Climate change and altitudinal structuring of malaria vectors in south-western Cameroon: Their relation to malaria transmission

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Year: 2010
Journal: Transactions of The Royal Society of Tropical Medicine and Hygiene. 104 (7): 453-460

Abstract:

An entomological survey was conducted in Cameroon between October 2004 and September 2005, in nine localities targeted for malaria vector control based on adult productivity and variability. Mosquitoes were collected by human-landing catches (HLCs) and pyrethrum spray catches. A total of 12 500 anophelines were collected and dissected: Anopheles gambiae s.l. (56.86%), An. funestus s.l. (32.57%), An. hancocki (9.38%), and An. nili (1.18%). Applying PCR revealed that specimens of the An. funestus group were An. funestus s.s. and An. gambiae complex were mostly An. melas and An. gambiae s.s. of the M and S molecular forms with the M forms being the most predominant. The natural distribution patterns of Anopheles species were largely determined by altitude with some species having unique environmental tolerance limits. A human blood index (HBI) of 99.05% was recorded. Mean probability of daily survival of the malaria vectors was 0.92, with annual mean life expectancy of 21.9 days and the expectation of infective life was long with a mean of 7.4 days. The high survival rates suggest a high vector potential for the species. This information enhances the development of a more focused and informed vector control intervention.

Source: http://dx.doi.org/10.1016/j.trstmh.2010.02.006

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Meteorological Factors, Precipitation, Temperature

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

Rural, Tropical

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Africa

African Region/Country: African Country

Other African Country: Cameroon

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Vectorborne Disease

Vectorborne Disease: Mosquito-borne Disease

Mosquito-borne Disease: Malaria

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology: ☑

type of model used or methodology development is a focus of resource

Exposure Change Prediction

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content